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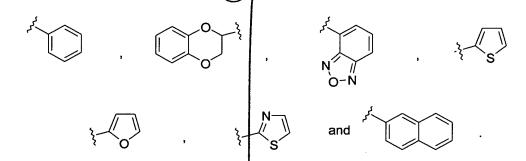
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WHAT IS CLAIMED IS:

- 1. A method of treating a CCR4-mediated condition or disease in a subject, said method comprising administering to a subject in need of such treatment an effective amount of a compound having the formula:
 - Ar^1-X-Ar^2 (I)
- 5 wherein
 - Ar¹ and Ar² are each members independently selected from the group consisting of substituted or unsubstituted aryl, substituted or unsubstituted fused arylheterocyclic ring systems and substituted or unsubstituted heteroaryl; and X is a linking group selected from the group consisting of -N(R)-, -C(O)S-,
- X is a linking group selected from the group consisting of -N(R)-, -C(O)S-,
 -CH=CHSO₂- and -SO₂N(R)- wherein R is a member selected from the
 group consisting of H and substituted or unsubstituted (C₁-C₈)alkyl.
 - 2. A method in accordance with claim 1, wherein X is –NH-.
 - 3. A method in accordance with claim 1, wherein X is -SO₂NH-.
 - 4. A method in accordance with claim 1, wherein Ar¹ and Ar² are each substituted or unsubstituted members independently selected from the group consisting of:



- 5. A method in accordance with claim 2, wherein Ar¹ is substituted heteroaryl and Ar² is substituted or unsubstituted aryl.
- 6. A method in accordance with claim 5, wherein said Ar¹ is a substituted heteroaryl selected from the group consisting of substituted thiazolyl, substituted thienyl, and substituted furanyl.

1	7. A method in accordance with claim 5, wherein said Ar ² is a
2	substituted or unsubstituted phenyl or a substituted or unsubstituted naphthyl.
1	8. A method in accordance with claim 3, wherein Ar ² is a phenyl
2	group having from 1 to 4 substituents independently selected from the group consisting of
3	halogen, hydroxy, (C ₁ -C ₄)alkyl, (C ₁ -C ₄)alkoxy, (C ₁ -C ₄)alkylthio, (C ₁ -C ₄)haloalkyl, (C ₁ -C ₄)
4	C ₄)haloalkoxy, nitro, cyano, (C ₁ -C ₄)acyl, amino, (C ₁ -C ₄)alkylamino, and di(C ₁ -
5	C ₄)alkylamino.
1	9. A method in accordance with claim-8, wherein said phenyl group
2	has from 1 to 3 substituents independently selected from the group consisting of halogen,
3	(C ₁ -C ₄)haloalkyl, (C ₁ -C ₄)haloalkoxy, nitro, cyano, and (C ₁ -C ₄)acyl.
1	10. A method in accordance with claim 3, wherein Ar ¹ is a substituted
2	or unsubstituted monocyclic or bicyclic heterocycle.
1	11. A method in accordance with claim 10, wherein said heterocycle is
	/ 10
2	selected from the group consisting of pyrrolyl, pyrazolyl, imidazolyl, pyrazinyl, oxazolyl,
3	isoxazolyl, thiazolyl, furyl, thienyl, pyridyl, pyrimidyl, benzothiazolyl, benzoxadiazolyl,
4	purinyl, benzimidazolyl, indolyl, iisqquinolyl, quinoxalinyl and quinolyl.
1	12. A method in accordance with claim 11, wherein said heterocycle is
2	selected from the group consisting of thienyl, thiazolyl and benzoxadiazolyl.
1	13. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is selected from the group consisting of contact
3	hypersensitivity, atopic dematitis, allergic airway hypersensitivity, allergic rhinitis,
4	atherosclerosis, septic shock, angina, myocardial infarction, restenosis,
5	ischemia/reperfusion injury, multiple sclerosis, rheumatoid arthritis, type I diabetes,
6	psoriasis, cancer and HIV infection.
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1	14. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is psoriasis, contact hypersensitivity or atopic dermatitis.
1	15. A method in accordance with claim 14, wherein said CCR4-
2	mediated condition or disease is psoriasis.

Ţ	16. A method in accordance with claim 14, wherein said CCR4-
2	mediated condition or disease is contact hypersensitivity.
1	17. A method in accordance with claim 14, wherein said CCR4-
2	mediated condition or disease is atopic dermatities.
1	18. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is a disease of the airway.
1	19. A method in accordance with claim 18, wherein said disease of the
2	airway is selected from the group consisting of allergic asthma and allergic rhinitis.
1	20. A method in accordance with claim 18, wherein said disease of the
2	airway is allergic asthma.
1	21. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is a disease of innate immunity.
1	22 A method in accordance with claim 21, wherein said disease of
2	innate immunity is septic shock.
2	milate minimity is septily shock.
1	method in accordance with claim 1, wherein said CCR4-
2	mediated condition or/disease is atherosclerosis.
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1	24. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is a disease or condition characterized by platelet
3	aggregation or thrombosis.
1	25. A method in accordance with claim 24, wherein said CCR4-
2	mediated disease or condition is selected from the group consisting of angina, myocardial
3	infarction, restenosis, stroke and ischemia/reperfusion injury.
1	/ 26. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is an allergic condition and said compound is used alone or
3	in combination with at least one therapeutic agent wherein said therapeutic agent is an
4	antihistamine.

1	27. A method in accordance with claim 1, wherein said CCR4-
2	mediated disease or condition is psoriasis and said compound is used alone or in
3	combination with at least one therapeutic agent selected from a corticosteroid, a lubricant,
4	a keratolytic agent, a vitamin D ₃ derivative, PUVA, or anthralin.
1	28. A method in accordance with claim 1, wherein said CCR4-
2	mediated disease or condition is atopic dermatitis and said compound is used alone or in
3	combination with at least one therapeutic agent/selected from a lubricant and
4	corticosteroid.
1	29. A method in accordance with claim 1, wherein said CCR4-
2	mediated condition or disease is asthma and said compound is used alone or in
3	combination with at least one therapeut agent selected from a \$2-agonist and a
4	corticosteroid.
1	30. A method in accordance with claim 1, wherein said compound
2	interferes with the interaction between CCR4 and a ligand.
1	31. A method in eccordance with claim 1, wherein said administration
2	is oral or intravenous.
1	32. A method in accordance with claim 1, wherein said subject is
2	selected from the group consisting of human, rat, dog, cow, horse, and mouse.
1	33. Amethod in accordance with claim 1, wherein said subject is
. 2	human.
1	34. A method in accordance with claim 1, wherein said compound is
2	selected from the group consisting of

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A method in accordance with claim 1, wherein said CCR4-**35**. mediated disease or condition is selected from the group consisting of multiple sclerosis,

rheumatoid arthritis, type I diabetes, psoriasis, cancer and HIV infection; Ar¹ is a substituted heterocycle; X is –SO₂NH-; and Ar² is a substituted phenyl.

A method in/accordance with claim 1, wherein said CCR4-**36**. mediated disease or condition is selected from the group consisting of multiple sclerosis, rheumatoid arthritis, type I drabetes, psoriasis, cancer and HIV infection; Ar¹ is a substituted heterocycle; X is – MH-; and Ar² is naphthyl.

A pharma eutical composition for the treatment of a CCR4-37. mediated disease or condition/said composition comprising a pharmaceutically acceptable carrier and an effective amount of a compound which inhibits the binding of MDC or TARC to CCR4/said compound having the formula:

> Ar¹-X-Ar² (I)

Ar¹ and Ar² are/each members independently selected from the group consisting of substituted or unsubstituted aryl, substituted or unsubstituted fused arylheterocyclic ring systems and substituted or unsubstituted heteroaryl; and X is a linking group selected from the group consisting of -N(R)-, -C(O)S-, -CH=CHSO₂- and -SO₂N(R)- wherein R is a member selected from the

group consisting of H and substituted or unsubstituted (C1-C8)alkyl.

3/8. A composition of claim 37, wherein X is -NH-.

B9. A composition of claim 37, wherein X is -SO₂NH-.

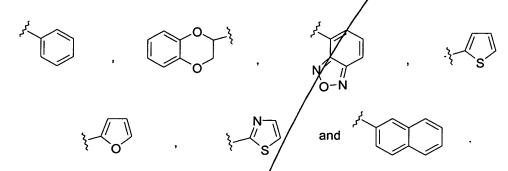
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1 40. A composition of claim 37, wherein Ar¹ and Ar² are each
2 substituted or unsubstituted members independently selected from the group consisting
3 of:



- 1 41. A composition of claim 37, wherein Ar¹ is substituted heteroaryl and Ar² is substituted or unsubstituted ary).
 - 42. A composition of claim 41, wherein said Ar¹ is a substituted heteroaryl selected from the group consisting of substituted thiazolyl, substituted thienyl, and substituted furanyl.
 - 43. A composition of claim 41, wherein said Ar² is a substituted or unsubstituted phenyl or a substituted or unsubstituted naphthyl.
- 1 44. A composition of claim 41, wherein Ar² is a phenyl group having 2 from 1 to 4 substituents independently selected from the group consisting of halogen,
- 3 hydroxy, (C_1-C_4) alkyl, (C_1-C_4) alkoxy, (C_1-C_4) alkylthio, (C_1-C_4) haloalkyl, (C_1-C_4)
- 4 C_4)haloalkoxy, nitro, cyan ϕ , (C_1 - C_4)acyl, amino, (C_1 - C_4)alkylamino, and di(C_1 -
- 5 C₄)alkylamino.
- 1 45. A composition of claim 44, wherein said phenyl group has from 1
- 2 to 3 substituents independently selected from the group consisting of halogen, (C₁-
- 3 C_4)haloalkyl, (C_1-C_4) haloalkoxy, nitro, cyano, and (C_1-C_4) acyl.
- 1 46. A composition of claim 37, wherein Ar¹ is a substituted or unsubstituted monocyclic or bicyclic heterocycle.
- 1 47. A composition of claim 46, wherein said heterocycle is selected 2 from the group consisting of pyrrolyl, pyrazolyl, imidazolyl, pyrazinyl, oxazolyl,

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- isoxazolyl, thiazolyl, furyl, thienyl, pyridyl, pyrimidyl, benzothiazolyl, benzoxadiazolyl, 3 4 purinyl, benzimidazolyl, indolyl, isoquinolyl, quinoxalinyl and quinolyl.
- A composition of claim 47, wherein said heterocycle is selected 1 48. 2 from the group consisting of thienyl, thiazolyl and benzoxadjazolyl.
- A composition of claim 37, wherein said compound is selected 1 **49**. 2 from the group consisting of

$$O_2N$$

52.

- **50**. A method for modulating CCR4 function in a cell, comprising contacting said cell with a CCR/4-modulating amount of a composition of claim 37.
- **5**1. A method for modulating CCR4 function, in which said cell is contacted with a CCR4 protein with a therapeutically effective amount of the composition of claim 37.

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or a pharmaceutically acceptable salt thereof, wherein

5 W is selected from aryl, heteroaryl, (C₁-C₈)alkyl, heteroalkyl, cycloalkyl and 6 heterocycloalkyl;

compound of formula (I):

X is selected from $N(R^5)$, S, O, $C(R^3)=C(R^4)$, $N=C(R^4)$ and, optionally, when Z is 7 N, X can be $C(R^6)(R^7)$; 8

9	Y is selected from a bond, N(R ⁵), N(R ⁵)-(C ₁ -C ₈)alkylene, O, S, and S(O) _n , wherein
10	the integer n is 1 or 2;
11	Z is selected from N and $C(R^8)$;
12	R ¹ and R ² are independently selected from H, halogen, CN, CO ₂ R', CONR'R",
13	(C_1-C_8) alkyl, heteroalkyl, aryl, heteroaryl, $N(R^6)(R^7)$, OR^9 and optionally,
14	R ¹ and R ² combine to form a 5- to 8-membered ring containing from 0 to 3
15	heteroatoms selected from N, O and S, wherein R' and R" are
16	independently selected from H, (C1-C8)allyl and aryl, and when R' and R"
17	are attached to nitrogen atom, they may be combined with the nitrogen
18	atom to form a 5-, 6-, or 7-membered ring;
19	R ³ , R ⁴ and R ⁸ are independently selected from H, halogen, CN, OH, (C ₁ -C ₈) alkyl,
20	heteroalkyl, aryl, heteroaryl, $O(C_1-C_2)$ alkyl, $N(R^6)(R^7)$ and OR^9 ;
□ 21	R ⁵ is selected from H, (C ₁ -C ₈)alkyl, heteroalkyl, aryl and heteroaryl;
<u> </u>	R ⁶ and R ⁷ are independently selected from H, (C ₁ -C ₈)alkyl, heteroalkyl, aryl and
口 21 口 22 口 23 口 24	heteroaryl; and
Л 24	R ⁹ is selected from (C ₁ -C ₈)alkyl, heteroalkyl and haloalkyl;
河 25	with the provisos that \mathbb{R}^2 is other than \mathbb{R}^2 when \mathbb{R}^2 is other than \mathbb{R}^2 when \mathbb{R}^2 is \mathbb{R}^2
# 26	Y is NH, Z is N and R^1 is $(C_1 C_8)$ alkyl; and R^1 other than phenyl, when W is phenyl or
27	unsubstituted naphthyl, X is \$, Y is NH, and Z is N.
	53. A compound of claim 52, wherein Z is N.
1	54. A compound of claim 52, wherein X is S.
1	55. A compound of claim 52, wherein Y is N(R ⁵).
1	56. A compound of claim 52, wherein Z is N, X is S and Y is N(R ⁵).
1	57. A compound of claim 52, wherein W is aryl or heteroaryl.
1	58. A compound of claim 57, wherein W is substituted or unsubstituted
2	phenyl or naphthyl.
_	
1	59. A compound of claim 57, wherein W is substituted or unsubstituted
2	pyridyl or quinolyl.
	/

1	60.	A compound of claim 52, wherein R ¹ and R ² are each
2	independently selecte	ed from H and (C ₁ -C ₈)alkyl.
.1	61.	A compound of claim 52, wherein R ¹ and R ² are combined to form
2	a fused 6-membered	aryl or heteroaryl ring.
1	62 .	A compound of claim \$2, wherein Z is N, X is S, Y is N(R ⁵) and
2	R ¹ and R ² are each in	dependently selected from H and (C1-C8)alkyl.
1	63.	A compound of claim 52, wherein Z is N, X is S, Y is N(R ⁵) and
2	R ¹ and R ² are combin	ned to form a fixed 6-membered aryl or heteroaryl ring.
1	64.	A compound of claim 52, said compound being selected from the
2	group consisting of:	

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Me ←Me Me Me , ←Me Мe Мe 2 12 CI Me ←Me Me Me Ме Me ←Me Me Me ←Me Me -Me Мe Мe Ме 10 Me ←Me Me Me (Me Me 19 13 Me Me ←Me Me Ме Me Me Ме 6 Me 15 Mé Me ←Me Me and 20 A compound of claim 52, said compound being selected from the 65/. group consisting of:

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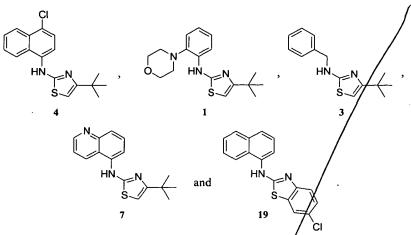
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66. A compound of claim 52, wherein

W is selected from substituted phenyl, substituted or unsubstituted naphthyl, pyridyl, quinolyl, (C₁-C₈)alkyl, heteroalkyl, cycloalkyl and heterocycloalkyl;

X is selected from $N(R^5)$, S, O, $C(R^3)=C(R^4)$, $N=C(R^4)$ and, optionally, when Z is N, X can be $C(R^6)(R^7)$;

Y is selected from a bond, N(R⁵), N(R⁵)-(C₁-C₈)alkylene, O, S and S(O)_n, wherein the integer n is 1 or 2;

Z is selected from N and $\mathfrak{C}(\mathbb{R}^8)$;

R¹ and R² are independently selected from H, halogen, CN, CO₂R', CONR'R", (C₁-C₈)alkyl, heteroalkyl, aryl, heteroaryl, N(R⁶)(R⁷), OR⁹ and optionally, R¹ and R² combine to form a 5- to 8-membered ring containing from 0 to 3 heteroatoms selected from N, O and S, wherein R' and R" are independently selected from H, (C₁-C₈)alkyl and aryl, and when R' and R" are attached to a nitrogen atom, they may be combined with the nitrogen atom to form a 5-, 6-, or 7-membered ring;

R³, R⁴ and R⁸ are independently selected from H, halogen, CN, OH, (C₁-C₈)alkyl, heteroalkyl, aryl, heteroaryl, O(C₁-C₈)alkyl, N(R⁶)(R⁷) and OR⁹;

 R^5 is selected from H/, (C_1-C_8) alkyl, heteroalkyl, aryl and heteroaryl;

R⁶ and R⁷ are independently selected from H, (C₁-C₈)alkyl, heteroalkyl, aryl and heteroaryl;/and

 R^9 is selected from (C_1-C_8) alkyl, heteroalkyl and haloalkyl.

67. A compound of claim 66, wherein Z is N.

1	68. A compound of claim 66, wherein X is S.
1	69. A compound of claim 66, wherein Y is N(R ⁵).
1	70. A compound of claim 66 , wherein Z is N/X is S and Y is N(R ⁵).
1	71. A compound of claim 66, wherein W is substituted phenyl or
2	substituted or unsubstituted naphthyl.
1	72. A compound of claim 66, wherein W is substituted or unsubstituted
2	pyridyl or substituted or unsubstituted quinolyl.
1	73. A compound of claim 66, wherein R ¹ and R ² are independently
2	selected from the group consisting of H and (C ₁ -C ₂)alkyl.
1	74. A compound of claim 66 , wherein R^1 and R^2 are combined to form
2	a fused 6-membered aryl or heteroary ring.
1	75. A compound of claim 66, wherein W is substituted phenyl or
2	substituted or unsubstituted naphthyl, Z is N, X is S, Y is N(\mathbb{R}^5), and \mathbb{R}^1 and \mathbb{R}^2 are
3	independently selected from the group consisting of H and (C ₁ -C ₈)alkyl.
1	76. A compound of claim 66, wherein W is substituted phenyl or
2	substituted or unsubstituted naphthyl, Zis N, X is S, Y is N(R ⁵), and R ¹ and R ² are
3	combined to form a fused 6-membered aryl or heteroaryl ring.
1	77. A compound of claim 66, wherein W is substituted or unsubstituted
2	pyridyl or substituted or unsubstituted quinolyl, Z is N, X is S, Y is N(R ⁵), and R ¹ and R ²
3	are independently selected from the group consisting of H and (C ₁ -C ₈)alkyl.
1	78. A compound of claim 66, wherein W is substituted or unsubstituted
2	pyridyl or substituted or unsubstituted quinolyl, Z is N, X is S, Y is N(R ⁵), and R ¹ and R ²
3	are combined to form a fused 6-membered aryl or heteroaryl ring.
1	79. A pharmaceutical composition comprising a pharmaceutically
2	acceptable carrier and a compound of formula (I):
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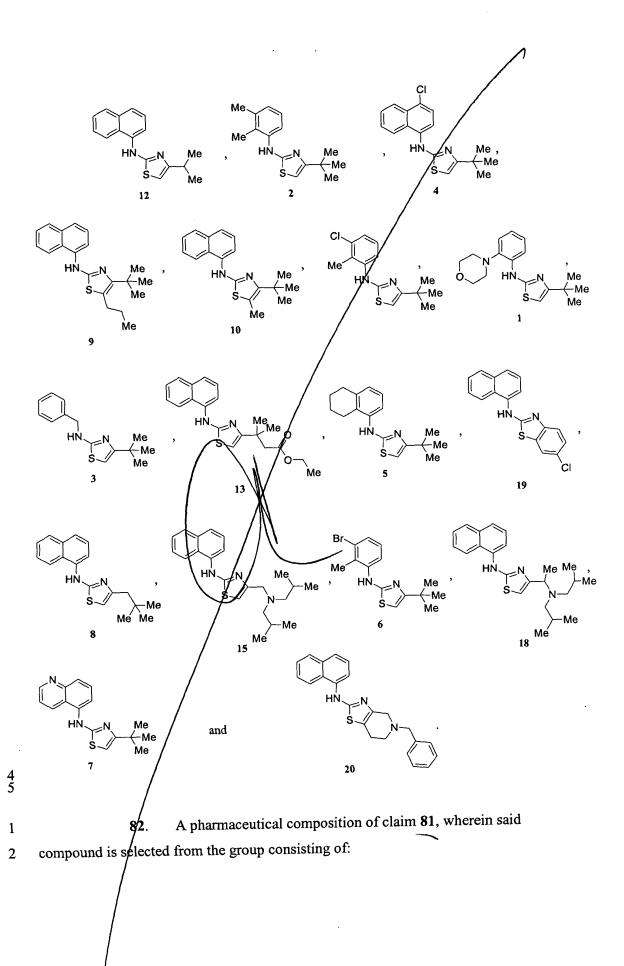
5	or a pharmaceutically acceptable salt thereof, wherein
6	W is selected from aryl, heteroaryl, (C ₁ -C ₈)alkyl, heteroalkyl, eycloalkyl and
7	heterocycloalkyl;
8	X is selected from $N(R^5)$, S, O, $C(R^3)=C(R^4)$, $N=C(R^4)$ and, optionally, when Z is
9	N, X can be $C(R^6)(R^7)$;
10	Y is selected from a bond, N(R ⁵), N(R ⁵)-(C ₁ -C ₈)alkylene, O, S and S(O) _n , wherein
11	the integer n is 1 or 2;
12	Z is selected from N and $C(R^8)$;
13	R ¹ and R ² are independently selected from M, halogen, CN, CO ₂ R', CONR'R",
14	(C_1-C_8) alkyl, heteroalkyl, aryl, hereroaryl, $N(R^6)(R^7)$, OR^9 and optionally,
15	R ¹ and R ² combine to form a 5-/to 8-membered ring containing from 0 to 3
1 6	heteroatoms selected from N,O and S, wherein R' and R" are
⊒ 16 □ □ 17	independently selected from H, (C ₁ -C ₈)alkyl and aryl, and when R' and R"
18	are attached to nitrogen atom, they may be combined with the nitrogen
19	atom to form a/5-, 6-, of v-membered ring;
n n 20	R ³ , R ⁴ and R ⁸ are independently selected from H, halogen, CN, OH, (C ₁ -C ₈) alkyl,
<u>.</u> 21	heteroalkyl, aryl, heteroaryl, $O(C_1-C_8)$ alkyl, $N(R^6)(R^7)$ and OR^9 ;
22	R ⁵ is selected from H, (C ₁ -C ₈) alkyl, beteroalkyl, aryl and heteroaryl;
23	R ⁶ and R ⁷ are independently selected from H, (C ₁ -C ₈)alkyl, heteroalkyl, aryl and
24	heteroaryl; and
25	R^9 is selected from C_1 - C_8) alkyl, heteroalkyl and haloalkyl.
1	80. A method for treating a CCR4-mediated condition in a subject, said
2	method comprising administering to a subject in need of such treatment an effective
3	amount of a compound of of formula (I):
	R^1
	$\sqrt{\frac{Z}{X}}$ \mathbb{R}^2
4	$W-Y \longrightarrow X \longrightarrow \mathbb{R}^2$
5	/ I
6	or a pharmaceutically acceptable salt thereof, wherein
7	W is selected from aryl, heteroaryl, (C ₁ -C ₈)alkyl, heteroalkyl, cycloalkyl and
8	/ heterocycloalkyl;
9	X is selected from $N(R^5)$, S, O, $C(R^3)=C(R^4)$, $N=C(R^4)$ and, optionally, when Z is
10	/ N, X can be $C(R^6)(R^7)$;

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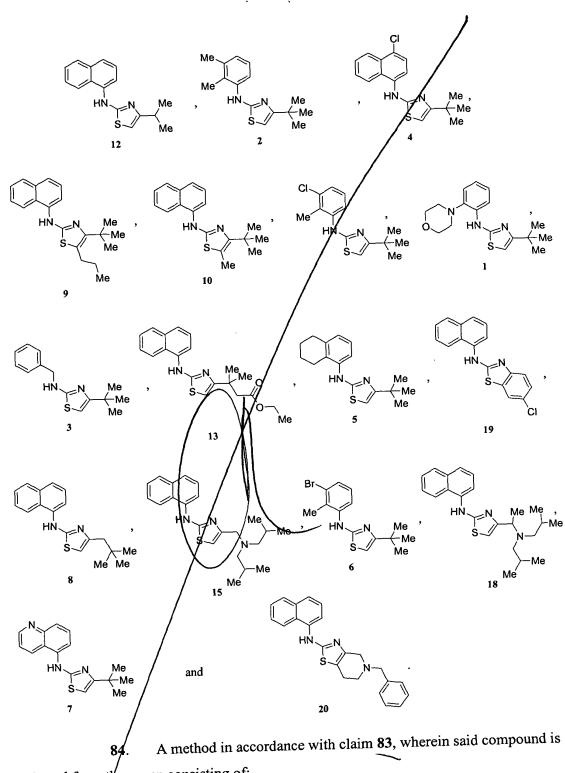
Y is selected from a bond, N(R⁵), N(R⁵)-(C₁-C₈)alkylene, O, S and S(O)_n, wherein 11 12 the integer n is 1 or 2; Z is selected from N and $C(R^8)$; 13 R^1 and R^2 are independently selected from H, halogen, CN, CQ_2R' , CONR'R", 14 (C_1-C_8) alkyl, heteroalkyl, aryl, heteroaryl, $N(R^6)(R^7)$, OR^9 and optionally, 15 . R¹ and R² combine to form a 5- to 8-membered ring containing from 0 to 3 16 17 heteroatoms selected from N, O and S, wherein R' and R" are independently selected from H, (C₁-C₈)alkyl and aryl, and when R' and R" 18 19 are attached to nitrogen atom, they may be combined with the nitrogen 20 atom to form a 5-, 6-, or 7-membered rings 21 R³, R⁴ and R⁸ are independently selected from H, halogen, CN, OH, (C₁-C₈) alkyl, heteroalkyl, aryl, heteroaryl, $O(C_1-C_8)$ alkyl, $N(R^6)(R^7)$ and OR^9 ; 22 R⁵ is selected from H, (C₁-C₈)alkyl, heteroalkyl, aryl and heteroaryl; 23 R⁶ and R⁷ are independently/selected from/H, (C₁-C₈)alkyl, heteroalkyl, aryl and 24 25 heteroaryl; and 26 R⁹ is selected from (C₁-C₈)alkyl, heter alkyl and haloalkyl. 1

81. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a compound selected from the group consisting of:



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- 83. A method for treating a CCR4-mediated condition in a subject, said
- 2 method comprising administering to a subject in need of such treatment an effective
- amount of a compound selected from the group consisting of:



selected from the group consisting of: